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SCOTT AIR FORCE BASE, Ill. —Networks are powerful systems that play a critical role in battlefield success, and mission effectiveness is increased dramatically as warfighters share quality, timely information.

Two building blocks of those powerful networks consist of enterprise architectures and the Constellation-Net that combine to create what is called net centricity.

Enterprise architectures

Enterprise architectures provide structure and design, and also provide repeatable patterns, that can be used to build complex structures such as information networks.
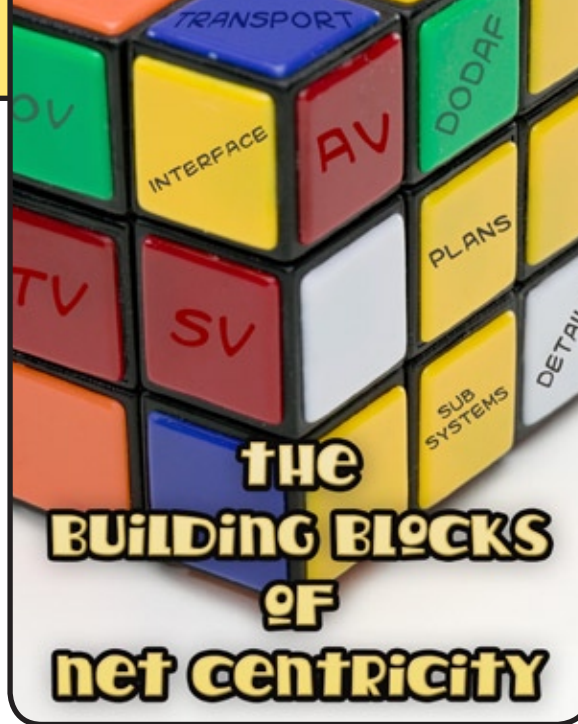
They force designers to think how the end product will be used before it's built and provide a roadmap for future development.

By providing a high-level view, architectures also enable decision makers to see what systems or applications are needed to provide a specific capability, where deficiencies exist, and where redundant functions or capabilities exist.

The move to enterprise architectures in the federal government began with the passage of the Clinger-Cohen Act of 1996. Clinger-Cohen was designed to improve the way federal agencies select and manage information technology resources.

The law mandated that agencies develop, maintain, and facilitate integrated architectures. The DoD was ahead of the rest of the federal government, having begun work on an architecture framework in 1995. The Command, Control, Communications, Computer, Intelligence, Surveil-

lance, and Reconnaissance Architecture Framework was released in June 1996. Prior to the release of the C4ISR Framework, standardization and interoperability did not exist among many DoD systems. The framework was intended to integrate the existing standardization efforts into a single work. Some of the existing efforts focused on software, others hardware, but the C4ISR Framework encompassed both.

A key feature of the framework is an integrated architecture that captures the major views:

▶▶ The **operations view, or OV**, is a description of tasks and activities required to accomplish missions.

▶▶ The **systems view, or SV**, describes systems and interconnections that provide or support DoD functions.

▶▶ The **technical view, or TV**, is the minimal set of rules governing the parts or elements in the architecture.

▶▶ A fourth view, the **all-view, or AV**, captures aspects that relate to all of the other views and provides an overall description of the scope and purpose of the architecture.

The framework also ensures that architecture definitions mean the same thing across organizations. The C4ISR Framework was renamed the Department of Defense

Architecture Framework, or DoDAF, in 2004.

Individual services began work on their own enterprise architectures after the release of the C4ISR Framework.

ConstellationNet

ConstellationNet was originally known as the Air Force Infostructure Architecture and is one of three sub-enterprise architectures.

It provides enabling capabilities to the other two sub-enterprises —Warfighter Support and Operational Support.

ConstellationNet provides a way to connect all users. It provides a guideline for future development of applications and services by requiring them to be able to "plug in" somewhere in the ConstellationNet.

ConstellationNet addresses four key enterprise network capabilities:

▶▶ **Providing subscriber interface services** concerns functions such as invoking subscriber authentication services and providing a man-machine interface.

▶▶ The **perform network operations service** involves planning and managing systems and networks, providing information dissemination (distribution) services, and providing information assurance and network defense services.

▶▶ **Provide information transport services** addresses the transport of information and spectrum management.

▶▶ **Provide net centric enterprise services** relates to providing information computing services, information management services, and providing community of interest environment.

Providing warfighters with the means to have consistent access to needed information is the goal of ConstellationNet.